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Neolinocarpon attaleae sp. nov. on *Attalea funifera* (*Arecaceae*) from Brazil

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Abstract — *Neolinocarpon attaleae* is described from the palm *Attalea funifera* collected in Brazil. This species is illustrated and compared with similar species. A key to all species of *Neolinocarpon* is provided.

Key words — *Ascomycota*, biodiversity, palm fungi, taxonomy, Brazilian mycota

Introduction

Hyde (1992) introduced the genus *Neolinocarpon* K.D. Hyde to accommodate *N. globosicarpum* K.D. Hyde, a *Linocarpon*-like specimen, with deeply immersed ascomata formed beneath a slightly raised or flattened clypeus. Since then, seven new species and a new combination have been added to *Neolinocarpon*: *N. australiense* K.D. Hyde et al., *N. calami* K.D. Hyde et al., *N. enshiense* K.D. Hyde et al., *N. eutypoides* (Penz. & Sacc.) K.D. Hyde et al., *N. inconspicuum* K.D. Hyde et al., *N. nonappendiculatum* K.D. Hyde et al., *N. nypicola* K.D. Hyde & Alias, and *N. penniseti* Bhilabutra & K.D. Hyde (Hyde et al. 1998, Hyde & Alias 1999, Bhilabutra et al. 2006). All species of *Neolinocarpon* have so far been collected on palms, except *N. penniseti*, a species from grass.

During palm microfungi surveys of Pernambuco and Bahia States along the Brazilian Northeastern coast 81 ascomycetes were identified

(Souza et al. 2008, Vitoria et al. 2008, 2010, 2011a,b, 2012). In this paper a new species, *Neolinocarpon attaleae* from *Attalea funifera* Mart. ex Spreng. (*Arecaceae*), is illustrated, described, and compared with similar species within *Neolinocarpon*.

Materials & methods

Dead leaves of palms were collected in the municipality of Una, Bahia state. The specimens collected were incorporated into CEPEC Herbarium (Mycological Collection) in Itabuna, Bahia. Observations under the stereomicroscope were followed by the study of squash preparations and vertical free hand sections of the ascomata. Morphological features were described and measured using a Zeiss-Axiophot E microscope and photographed were taken using a digital camera Cyber-shot 4.1 Mega Pixels DSC-P73x, adjusted to the eyepieces of the microscope and the stereomicroscope. All measurements were made in water preparations. Samples stained with lacto-glycerol cotton blue, Melzer's reagent and acid lactofuchsin were also prepared.

Neolinocarpon attaleae Vitória & J.L. Bezerra, **sp. nov.** PLATES 1–2

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Differs from *Neolinocarpon nonappendiculatum* by its shorter, wider, slightly curved to straight, clavate ascospores.

TYPE: Brazil. Bahia, Una, Estação Experimental Lemos Maia-CEPLAC, 15°16′207″S 39°05′532″W, on dead leaf (rachis) of *Attalea funifera*, 21.VII.2009, Nadja Vitória, 156 (**Holotype**, CEPEC 2320).

ETYMOLOGY: *attaleae,* in reference to the host genus, *Attalea.*

ASCOMATA deeply immersed in host tissue, externally visible as black, shiny, raised and spherical bodies, due its conspicuous clypeate ostioles; in vertical section 350–880 × 220–650 µm (including ostiole), subglobose with a blackened clypeus surrounding the periphysate ostiole. OSTIOLE ca 117.5–250 µm diam, 170–250 µm high, central. PERIDIUM up to 55 µm wide, composed of several layers of brown, elongated, flattened cells, sometimes comprising two darker outer strata and one lighter inner stratum. PARAPHYSES up to 5 µm wide, numerous, hypha-like, septate, unbranched. ASCI 137.5–227.5 × 7.5–14(–15) µm, 8-spored, cylindric-clavate, usually curved, sometimes straight, long pedicellate, unitunicate, apically rounded, with a refractive, discoid, non-amyloid subapical ring ca 1.5–2 × 1–2 µm. ASCOSPORES (52.5–)57.5–93(–105) × 3–4(–5) µm, fasciculate, hyaline, guttulate, unicellular, smooth, slightly curved to straight, filiform-cylindrical, filiform-fusoid to ± clavate, apex rounded, attenuated towards rounded base, with refractive septum-like bands, lacking appendages.

ADDITIONAL SPECIMENS EXAMINED — **BRAZIL. BAHIA**: Una, Estação Experimental Lemos Maia-CEPLAC, 18.XII.2008, Nadja Vitória, 154,155 (CEPEC 2318, 2319); 15.III.2010, Nadja Vitória, 157, 158 (CEPEC 2321, 2322); 06.VII.2010, Nadja Vitória, 159 (CEPEC 2323).

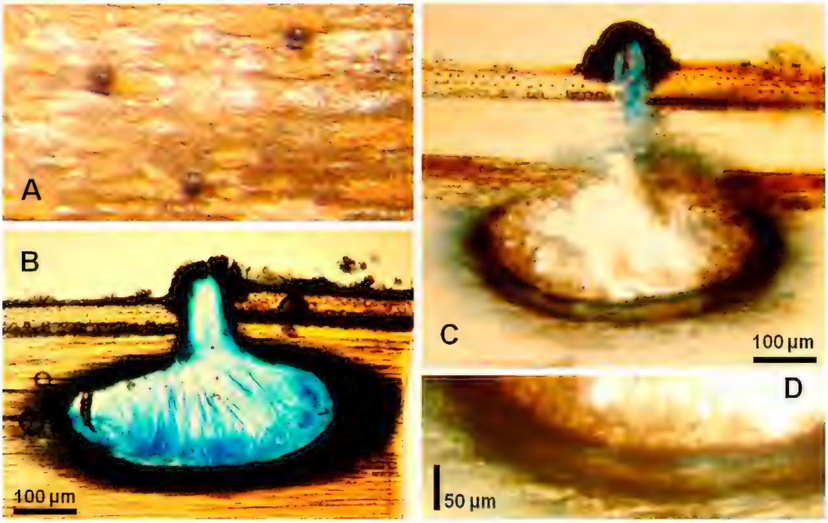

Plate 1. *Neolinocarpon attaleae* (from holotype): A. Appearance of the ascomata on the host surface. B–C. Vertical section through an ascoma. D. Section through peridium.

Comments — The collections from *Attalea funifera* were identified as *Neolinocarpon* according to Hyde (1992), but differ from other species of the genus mainly by ascospore morphology. As in *N. penniseti*, *N. inconspicuum*, and *N. nonappendiculatum*, *N. attaleae* lacks appendages at the apices of the ascospores (Bhilabutra et al. 2006). Ascospores of *N. attaleae* have similar dimensions to *N. penniseti* ((52.5–)57–64(–84) × 2.5–3 µm; Bhilabutra et al. 2006) and *N. inconspicuum* (76–98 × 2–3 µm; Hyde et al. 1998), but the new species differs in ascoma size and shape, asci and subapical ring, and ascospore morphology.

Key to species of *Neolinocarpon*

1a. Ascospores with appendage 2
1b. Ascospores without appendage 7

2a. Ascospores longer than 65 µm 3
2b. Ascospores 42–64 × 2–3.5 µm; mucilaginous pad at narrow truncated base . . . . *N. enshiense*

3a. Intertidal 4
3b. Terrestrial 5

4a. Ascospores 70–119.5 × 2–3 µm; ascomata solitary . . . . *N. globosicarpum*
4b. Ascospores 92–117 × 2–3.8 µm; ascomata in groups of 1–4. . . . . *N. nypicola*

5a. Basal appendage keel-like; ascospores 81–107(–126) × 2.5–3.5 µm . . . *N. australiense*
5b. Appendage a crescent-shaped or mucilaginous pad 6

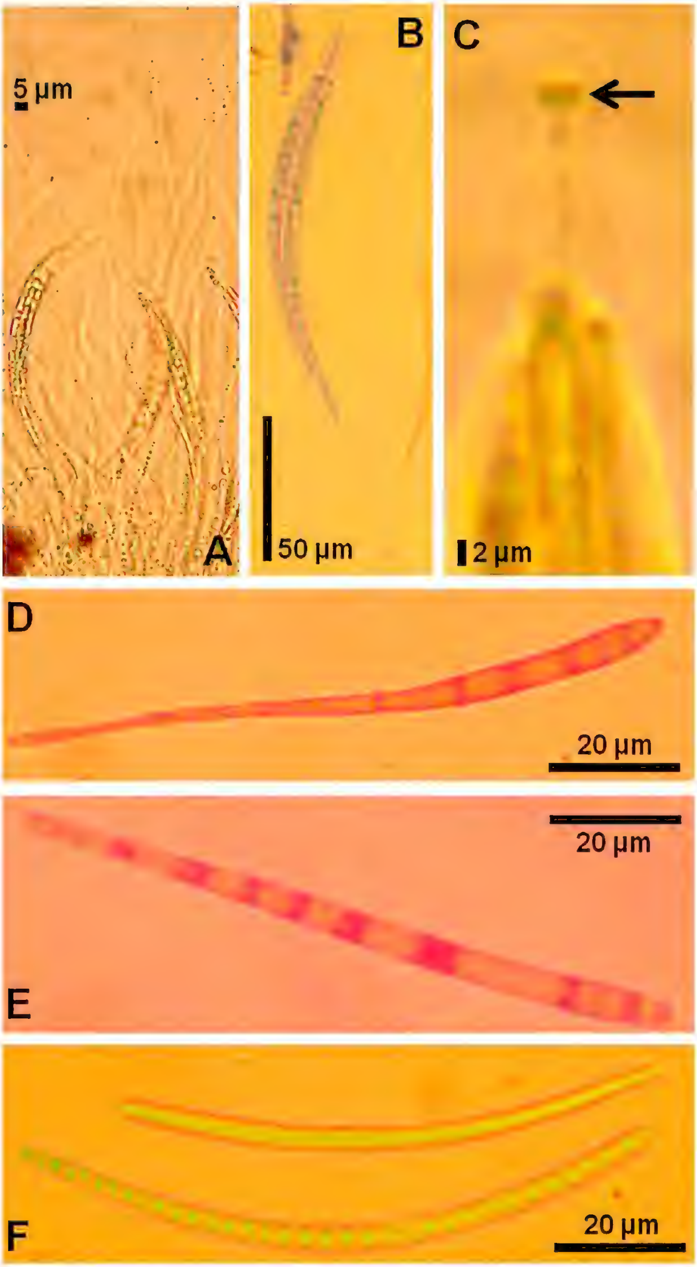

Plate 2. *Neolinocarpon attaleae* (from holotype): A. Paraphyses and asci. B. Ascus. C. Non-amyloid, discoid subapical ring (arrow). D–F. Ascospores.

6a. Crescent-shaped mucilaginous pad at apex; ascospores 68–85 × 2.5–3.5 µm . . . . *N. calami*
6b. Mucilaginous appendage at base; ascospores 73–95(–106) × 1.5–2.2 µm . . . . *N. eutypoides*

7a. Ascomata inconspicuous; ascospores 76–98 × 2–3 µm . . . . *N. inconspicuum*
7b. Ascomata conspicuous 8

8a. On grass (*Poaceae*); ascospores (52.5–)57–64(–84) × 2.5–3 µm . . . . *N. penniseti*
8b. On palms (*Arecaceae*) 9

9a. Ascospores (52.5–)57.5–93(–105) × 3–4 µm, filiform-cylindrical, filiform-fusoid to ± clavate . . . . *N. attaleae*
9b. Ascospores 114–138 × 2–2.5 µm, filiform, curved . . . . *N. nonappendiculatum*

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